



## Council Communication

**TO:** HONORABLE MAYOR AND COUNCILMEMBERS

**FROM:** MIKE GILLESPIE, P.E., TOWN ENGINEER

**THROUGH:** GREG TILQUE, DEVELOPMENT SERVICES DIRECTOR  
MARC SKOCYPEC, ASSISTANT TOWN MANAGER

**MEETING DATE:** APRIL 19, 2012

**SUBJECT:** APPROVAL OF STREET LIGHT SOLAR BLANKET AND ENERGY MANAGEMENT PILOT PROJECT, CONTRACT NO. 2013-2106-0016.

**STRATEGIC INITIATIVE:** Technology Leader

This pilot project supports the technology leader initiative by identifying and implementing measures to reduce energy consumption and utilizing state of the art technology.

**LEGAL REVIEW**

☒ Complete

☐ N/A

**FINANCIAL REVIEW**

☒ Complete

☐ N/A

### **RECOMMENDED MOTION**

**A MOTION DIRECTING STAFF TO PROCEED FORWARD WITH NEGOTIATIONS WITH GREEN GLOBAL FOR THE NEXT PHASE OF DEPLOYMENT OF SOLAR BLANKET AND ENERGY MANAGEMENT/CONTROL TECHNOLOGY ON EXISTING LIGHT POLES AND BRING A CONTRACT BACK TO THE COUNCIL FOR CONSIDERATION.**

### **BACKGROUND/DISCUSSION**

In September of 2010, staff was approached by Green Global regarding the potential deployment of solar and energy management/control equipment on Gilbert's existing street lights. The technology includes the installation of a solar photovoltaic system on the street light pole which is designed to generate electricity to be fed back into the local electric utility grid. In addition, wireless control equipment is installed on the street light that provides the opportunity to actively manage light output and ultimately the energy consumed by each street light.



In December, 2010 the Council approved Contract No. 2011-1002-0121 with Green Global for a pilot project placing the solar and energy management equipment on existing street lights. Staff worked with Green Global to identify the location and number of street lights to be included in the pilot project. Page Park and the adjacent parking lot were chosen for the pilot project with ten lights identified. Green Global then coordinated with the local electric utility, APS, to identify the necessary equipment to make the connection to their system and to process the required permits.

The pilot project began in May/June 2011 with the installation of the equipment. The pilot project was conducted for fifteen weeks starting in July 2011. The energy management was deployed in two scenarios as follows:

- **Target Light Level:** When new, a High Pressure Sodium (HPS) light fixture will put out more light than after it has stabilized at the design output. Therefore, it is over lighting the area resulting in bright spots. The system reduces the light output to the optimal nominal level.
- **Scheduled Level Savings:** The typical HPS light fixture will turn on at the start of dusk and be at its brightest within 5-8 minutes. By regulating the energy to the light, the controller can also save energy by ramping the power level up over a period of time consistent with the dusk or dawn conditions.
- In addition, during the late night/early morning hours, the light level can be reduced without a noticeable effect.

The energy savings resulting from these two scenarios was approximately a 30% reduction. Additional benefits of this technology include extended lamp life, system reporting of lamps out and/or malfunctioning, and scheduling of maintenance.

The solar photovoltaic system consisting of a solar blanket installed on the street light pole provided additional savings in the form of energy fed back into the electrical grid of approximately 2.8 KWh per pole per week of operation.

Also, during the pilot project, citizen feedback was solicited through survey forms and on the web site. The customer feedback was very positive regarding the use of energy saving technology and aesthetics of the equipment. The results of this pilot project were also presented to the Environmental and Energy Conservation Advisory Board on January 18, 2012 where the Board recommended proceeding forward with negotiations with Green Global for a next phase of deployment in the Town.

Green Global has indicated that if the Town chooses to proceed to the next phase of deployment, they can offer all of the equipment including installation and maintenance at no capital cost to the Town in return for a power purchase agreement for electricity at a 15% discount for the first five years and a 30% discount for the following ten years.

This Communication was reviewed by Attorney Susan Goodwin.

### **FINANCIAL IMPACT**

There is no financial impact at this time. The opportunity for savings is significant and will be further defined as a part of the negotiations with Green Global. The energy savings could have a significant savings to the Street Fund and to Gilbert residents directly through reduced energy charges assessed to the Town and Street Light Improvement Districts. This will require coordination with the local electric utilities to establish reduced rates for energy efficient equipment which Green Global has committed to working on and assisting the Town.

The financial impact was reviewed by Dawn Irvine, Budget Administrator.

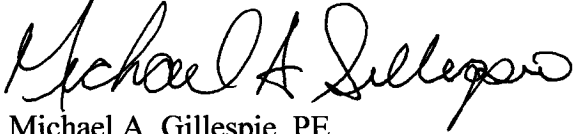


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### **STAFF RECOMMENDATION**

Staff recommends proceeding to the next phase by beginning negotiations with Green Global for the deployment of the energy management/control and solar blanket technology on additional street lights at Town-owned facilities and in neighborhoods where energy use can be measured. More specific information on the number of street lights to be equipped and the amount of savings to the Town and residents will be developed during the negotiations. At the conclusion of negotiations, staff will bring a contract back to the Council for consideration.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Michael A. Gillespie". The signature is fluid and cursive, with a large, stylized initial "M".

Michael A. Gillespie, PE

Town Engineer

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